2) $\forall k \in \mathbb{N}$; $u_{k+1} + u_k \geq 2$

$$\Rightarrow \sum_{k=0}^{n} u_{k+1} + u_k \geq \sum_{k=0}^{n} 2$$

$$\Rightarrow w_n \geq 2(n-0+1)$$

$$\Rightarrow w_n \geq 2(n+1)$$

$$\lim_{n \to +\infty} 2(n+1) = +\infty$$

Ainsi $\lim_{n \to +\infty} w_n = +\infty$

$$\sum_{k=p}^{n} \text{cste} = \text{cste}\,(n-p+1)$$